IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A simulation method of simulating a behavior of a mechanism to be simulated along a time axis on the basis of description data using a hybrid model, comprising:

parsing the description data to extract a description of continuous system equations, a description of switching of the continuous system equations upon state transition, and a description of an additional process other than any process relating to the continuous system equations;

generating a first program on the basis of the extracted description of the continuous system equations;

generating a second program on the basis of the extracted description of the switching;

generating a third program on the basis of the extracted description of the additional process;

converting, by executing the first program, data structures of the continuous system equations into other data structures that allow execution of a simulation;

switching, by executing the second program, the converted continuous system equations to activate appropriate one of the converted continuous system equations and deactivate another instead, in response to occurrence of a first event;

executing the simulation to output data that expresses the behavior of the mechanism, wherein the activated one of the continuous system equations is solved by numerical integration along the time axis according to the converted data structure; and

executing the third program to execute the additional process in response to occurrence of a second event.

Claim 2 (Original): The method according to claim 1, further comprising:

detecting an occurrence of an event; and

calling the third program if the detected event corresponds to the second event.

Claim 3 (Original): The method according to claim 1, further comprising:

exchanging a control signal with an external system through an input/output port in accordance with the third program, the external system including a mechanism control software system that control the mechanism.

Claim 4 (Original): The method according to claim 1, wherein the first event contains an evaluation result of internal variables of the mechanism.

Claim 5 (Original): A simulation program product for simulating a behavior of a mechanism to be simulated along a time axis on the basis of description data using a hybrid model, the simulation program product comprising:

means for instructing a computer to parse the description data to extract a description of continuous system equations, a description of switching of the continuous system equations upon state transition, and a description of an additional process other than any process relating to the continuous system equations;

means for instructing the computer to generate a first program on the basis of the extracted description of the continuous system equations;

means for instructing the computer to generate a second program on the basis of the extracted description of the switching;

means for instructing the computer to generate a third program on the basis of the extracted description of the additional process;

means for instructing the computer to convert, by executing the first program, data structures of the continuous system equations into other data structures that allow execution of a simulation;

means for instructing the computer to switch, by executing the second program, the converted continuous system equations to activate appropriate one of the converted continuous system equations and deactivate another instead, in response to occurrence of a first event;

means for instructing the computer to execute the simulation to output data that expresses the behavior of the mechanism, wherein the activated one of the continuous system equations is solved by numerical integration along the time axis according to the converted data structure; and

means for instructing the computer to execute the third program to execute the additional process in response to occurrence of a second event.

Claim 6 (Original): The program product according to claim 5, further comprising:

means for instructing the computer to detect an occurrence of an event; and

means for instructing the computer to call the third program if the detected event corresponds to the second event.

Claim 7 (Original): The program product according to claim 5, further comprising:

means for instructing the computer to exchange a control signal with an external system through an input/output port in accordance with the third program, the external system including a mechanism control software system that control the mechanism.

Claim 8 (Original): The program product according to claim 5, wherein the first event contains an evaluation result of internal variables of the mechanism.

Claim 9 (Currently Amended): A method for analyzing a hybrid model which is used for a simulation of a behavior of a mechanism to be simulated along a time axis, the method comprising:

parsing the hybrid model description to extract a first description associated with continuous system equations, a second description associated with state transition, and a third description associated with an additional process; and

generating a first program based on the first description, a second program based on the second description, and a third program based on the third ~~program~~ description.

Claim 10 (Original): The method according to claim 9, wherein the third description comprises a first part which describes content of an additional process, and a second part which describes an execution control of the additional process in response to occurrence of an event.

Claim 11 (Original): The method according to claim 10, wherein the generating further comprises:

generating the third program on the basis of the first part of the third description; and

adding a program based on the second part to the second program.

Claim 12 (Currently Amended): A program product for analyzing a hybrid model which is used for a simulation of a behavior of a mechanism to be simulated along a time axis, comprising:

means for instructing a computer to parse the hybrid model description to extract a first description associated with continuous system equations, a second description associated with state transition, and a third description associated with an additional process; and

means for instructing the computer to generate a first program based on the first description, a second program based on the second description, and a third program based on the third ~~program~~ description.

Claim 13 (Original): The program product according to claim 12, wherein the third description comprises a first part which describes content of an additional process, and a second part which describes an execution control of the additional process in response to occurrence of an event.

Claim 14 (Original): The program product according to claim 12, further comprising:

means for instructing the computer to generate the third program on the basis of the first part of the third description; and

means for instructing the computer to add a program based on the second part to the second program.

Claim 15 (Original): A simulation method for simulating a behavior of a mechanism along with a time axis, using a hybrid model including a continuous system model expressed by continuous system equations, a state transition model expressing state transition upon occurrence of described events, and an additional process model, the method comprising:

storing the continuous system model in a storage;

checking whether any one of the events described in the state transition model is occurred;

checking whether the occurred event is associated with the additional process model;

executing an additional process corresponding to the additional process model if the occurred event is associated with the additional process model; and

executing a continuous simulation on the basis of continuous system equations that are active among the continuous system model stored in the storage.

Claim 16 (Original): The method according to claim 15, wherein the executing the additional process comprises exchanging a control signal with an external system through an input/output port, the external system including a mechanism control software system that control the mechanism.

Claim 17 (Original): The method according to claim 15, further comprising switching, in response to state transition based on the state transition model, the continuous system equations that are active.

Claim 18 (Original): A program product for simulating a behavior of a mechanism along with a time axis, using a hybrid model including a continuous system model expressed by continuous system equations, a state transition model expressing state transition upon occurrence of described events, and an additional process model, the program product comprising:

means for instructing a computer to store the continuous system model;

means for instructing the computer to check whether any one of the events described in the state transition model is occurred;

means for instructing the computer to check whether the occurred event is associated with the additional process model;

means for instructing the computer to execute an additional process corresponding to the additional process model if the occurred event is associated with the additional process model; and

means for instructing the computer to execute a continuous simulation on the basis of continuous system equations that are active among the continuous system model stored in the storage.

Claim 19 (Original): The program product according to claim 18, wherein the means for instructing the computer to execute the additional process comprises means for instructing the computer to exchange a control signal with an external system through an input/output port, the external system including a mechanism control software system that control the mechanism.

Claim 20 (Original): The program product according to claim 18, further comprising means for instructing the computer to switch, in response to state transition based on the state transition model, the continuous system equations that are active.